Measurement Data Collection and Storage Procedure Template

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Title: Measurement Data Collection and Storage Procedure Template

Asset Type: Template
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Purpose

This template enables GSFC software projects to develop Data Collection and Storage Procedures using a standard format. This procedure can stand as a separate document, or be added to a Software Management Plan / Product Plan (SMP/PP) as an appendix.

Scope

This template is recommended for all GSFC software projects and is required for projects producing Class A,B or C software, as defined in NPR 7150.2. (The NPR can be found at http://nodis.hq.nasa.gov/.)

Class A: Human-Rated Software Systems

Class B: Non-Human Space Rated Software Systems

Class C: Mission Support Software

Roles and Responsibilities

Product Development Lead (PDL)

- Responsible for the production of a Measurement Data Collection and Storage Procedure in conjunction with project planning

Tailoring of this Template

Text within the template that appears in this (style name = "Normal") style is equally applicable to every Measurement Data Collection and Storage Procedure (a.k.a. "the Procedure") and should be included without modification. All document section headings should also be included without modification, although their style names vary depending on outline level.

Text in this style [style name = "TAILORING ADVICE"] within the template is advice on how to tailor the information in any specific section. As the Procedure is developed, the generic [TAILORING ADVICE] text should be replaced with material that applies to the specific software project, or deleted, if it is general advice.

Text in **bold blue font** within brackets indicates places in the template where project-specific information needs to be inserted. For example, substitute the actual product name for the "**[Product Name]**" text in the Procedure title.

The gray-shaded paragraphs should remain in the tailored procedure as added guidance to team members.

Although the text in this template assumes the use of spreadsheet tools provided by the Software Process Improvement (SPI) project (see http://software.gsfc.nasa.gov), use of other tools is in no way precluded. The template is intended to document what a team is actually doing, so edit accordingly.

Note

The entire first two pages of this document should be deleted when producing the Procedure. This material is not part of the project's Procedure.

Change History

Version	Date	Description of Improvements
1.0	5/21/07	Initial version approved by CCB
2.0	8/28/07	Responded to issue #47 by making clarifying edits to step 3, to make it clear that a) all parts of Measurement Summary Tool are important, and b) that team is required to send data to SPI measurement team.

[Product Name] Measurement Data Collection and Storage Procedure

Purpose

This procedure describes the measurement data collection and storage procedures for the **[Product Name]** Product Development Team.

Scope

This procedure applies for the duration of the work performed by the Product Development Team. It is intended to support the team's periodic status monitoring and reporting as the project is progressing. It does **not** describe procedures for archiving relevant measures when the project is complete; this is a part of the project closeout process.

Roles and Responsibilities

Originator

- Provides measurement data to individuals responsible for its collection.

Responsible Person (see list in Table 1)

- Records and validates data using the appropriate spreadsheet tool
- Stores spreadsheets in the measurement repository.

PDL/Team Lead

- Analyzes measures and records analyses into the spreadsheets.
- Stores updated spreadsheets back to the measurement repository
- Ensures that all team members are providing measurement data as planned.

Step-Action Table

The measurement procedure is presented in two parts. The first is a step/action table that provides the sequence of steps to be followed when collecting, analyzing and storing measurement data. The second part, presented in Table 1, is detailed information about each type of measurement, including the tools used to collect the measurement data, method and frequency of data collection, and the person responsible for collecting and storing that particular data. The actual measures are defined in **[Table X of Section y]** in the Software Management Plan / Product Plan; Table 1 complements this information by showing the details of how data are collected. These two tables need to be consistent.

Step	Action	Role
1	Collect raw measurement data from originators. *"Originators" are those who provide the raw measurement data to those who collect it. Originators include:* • *Inspection moderators for inspection reports* • *PDL or team lead for problem reports* • *All team members for effort and progress data* • *PDL or team lead for requirements data* • *PDL for software characteristics* *In some cases, the person responsible for collecting the data (the "Responsible Person" in Table 1) may also be the originator of the data.*	1) "Responsible Person" listed in Table 1. 2) Originator: *List originators here by role, see advice to the left for possible roles.*
2	Record measures using the appropriate spreadsheet tool, as shown in Table 1. **Guidance:** Detailed instructions for data entry are provided with each of the spreadsheet tools shown in Table 1.	Responsible person listed in Table 1.
3	At major milestones, fill out the Measurement Summary Tool worksheets and e-mail the data to the SPI Measurement Team Lead. *The current SPI Measurement Team Lead is Mike Stark, who can be reached at michael.e.stark@nasa.gov* **Guidance**: Major milestones include project start and project completion.	Responsible person listed in Table 1.
4	Store each updated spreadsheet in the **[measurement repository specified in the Data Management List (DML)]** *(e.g., directory and server name)*	Responsible person listed in Table 1.
5	Upon retrieving and analyzing data, store any updates to the spreadsheets back to the repository. **Guidance:** This activity is in addition to the work being done to produce status report charts. Any analysis not presented in status reports should be recorded within the appropriate tool so that the analysis is documented and retained.	PDL/Team Lead

Notes on Tailoring Table 1 below

- *Edit Table 1 to replace tool names and collection methods with those that the team is actually using.*
- *Replace the abbreviation "PDL" with the name and role of the actual person responsible for maintaining data in each tool listed.*
- *The collection frequencies are recommendations; the minimum standards are defined in the Metrics Summary Table (see software.gsfc.nasa.gov).*
- *Problem reports and inspection moderator reports should be collected as part of normal workflow, not just when reporting status.*
- *A product development team may collect multiple spreadsheets with the same type of measures if measurement collection for a subset of the software is delegated to a sub-team lead: either a Development Team Lead (DTL) or a Test Team Lead (TTL). In this case, each sub-team spreadsheet needs to be listed in Table 1 in a row containing the corresponding details.*
- *The SPI toolset requires storing summary statistics for each inspection. If these inspection statistics are being reported during periodic status reviews, they are stored in the Status Reporting Tool. Otherwise they are stored in the Inspection Metrics Tool along with an analysis of the statistics. This approach is intended to minimize the amount of cutting and pasting necessary.*

Table 1: Information for each type of measure collected

Measures	Tool	Collection Method	Responsible Person	Collection Frequency
Software Progress and Cost Tracking	Staffing Tool	Direct Entry	*[PDL Name]*	Weekly
	Point Counting Spreadsheet	Direct Entry	*[PDL Name]*	Weekly
	Schedule Tool	Direct Entry	*[PDL Name]*	Weekly
Software Quality	Problem Report (PR) Tool	Direct Entry	*[PDL Name]*	As each PR is entered and as status is updated
	Inspection Metrics Tool [OR Status Reporting Tool]	Cut and paste data from each Inspection Moderator report.	*[PDL Name]*	At time inspection is approved by the Inspection Moderator and closed out.
Software Requirements Volatility	Requirements Metrics Tool, RQ By Date worksheet	Direct Entry	*[PDL Name]*	Monthly
Software Functionality	Requirements Metrics Tool, RQ by Build worksheet	Direct Entry	*[PDL Name]*	Monthly
Software Characteristics	Measurement Summary Tool	Direct Entry	*[PDL Name]*	At major milestones